ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL ALLIED OF HEALTH SCIENCES
DEPARTMENT OF NURSING AND MIDWIFERY

ASSESSMENT OF CLINICAL DECISION MAKING AMONG NURSES WORKING IN HOSPITALS OF ADDIS ABABA, ETHIOPIA, 2017.

BY - FIKIRTE NEGASH (BSC)

A THESIS TO BE SUBMITTED TO ADDIS ABABA UNIVERSITY, SCHOOL OF ALLIED OF HEALTH SCIENCES, COLLEGE OF HEALTH SCIENCE, DEPARTMENT OF NURSING AND MIDWIFERY IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS OF SCIENCE IN ADULT HEALTH NURSING.

JUNE, 2017

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This thesis by Fikirte Negash is accepted by the board of examiners as satisfying thesis requirement for the degree of Master of Science in Adult health Nursing.

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Abbreviations

AAU- Addis Ababa University

AOR- adjusted odd ratio

BSc- Bachelors of Science

CDM- Clinical decision making

CCT- Cognitive continuum theory

ETB- Ethiopian Birr

FMOH- Federal Ministry of health

ICU- Intensive Care Unit

MCM- Myung Sung Christian Medical center

MSc- Master of Science

PAS- Proportional allocation to size

SD- Standard deviation

SPSS- Statistical package for social sciences

PBL- Problem based learning

WHO- World health organization

Contents

Abbreviations i
List of tables iv
List of figures v
Abstract vi
1. Introduction 1
1.1 Background 1
1.2 Statement of Problem 3
1.3 Justification of the study 5
2. Literature Review 6
2.1 Clinical decision making 6
2.2 Factors associated with CDM of nurses 7
2.2 Conceptual frame works: 8
2.3 Theoretical frame work (cognitive continuum theory) 9
3. Objectives 11
3.1 General Objective 11
3.2 Specific Objectives 11
4. Methods and Material 12
4.1The study area and period 12
4.2 Study Design 12
4.3. Source Population 12
4.4 Study Population 12
4.5 Eligibility Criteria 12
4.5.1. Inclusion Criteria 12
4.5.2. Exclusion Criteria 12
4.6 Sample Size 13
4.7 Sampling method and Procedure 13
4.8 Variables of the study 16
4.8.1. Dependent Variable 16

4.8.2. Independent Variables 16
4.9 Operational definitions 16
4.10 Data Collection tool and process 16
4.11 Data Quality control 17
4.12 Data Processing and analysis 17
4.13 Ethical consideration 18
4.14 Dissemination of Results 18
5. Result 19
5.1 Participant characteristic 19
5.2 Clinical decision making result 19
5.3 Other variable affection nurses clinical decision making process 20
6. Discussion 25
7. Conclusion and recommendations 27
7.1 Conclusion 27
7.2 Recommendations 27
8. Strengths and limitation of the study 28
8.1 Strength 28
8.2 Limitation of the study 28
Reference 29
Appendix I Questionnaire 33
Appendix II- Declaration 35

List of tables

Table 1: Participants' characteristics by organization type (n=390), Addis Ababa, Ethiopia, 2017. 19
Table 2: Descriptive Statistics with the clinical decision making score for each predictor variable, Addis Ababa, Ethiopia, 2017. 21
Table 3: Clinical decision making score across difference pre-service teaching method, Addis Ababa, Ethiopia, 2017..... 22
Table 4: Clinical decision making patterns association between private and governmental organizations Addis Ababa, Ethiopia, 2017. 23

List of figures

Figure 1: Diagrammatic representation of conceptual framework on clinical decision making of nurses. 8
Figure 2: Nursing decision making theory framework based on Hammond's model of CCT. 10
Figure 3: Schematic presentation of sampling procedure on nurses' clinical decision making at hospitals in Addis Ababa 15
Figure 4: Clinical decision making respondent score, Addis Ababa, Ethiopia, 2017. 20

Abstract

Background: - Decision making at clinical level is the way in which nurses perceived to arrive at appropriate decisions in practical nursing situations. And these decisions have a direct impact on the health status of the patients, poor clinical reasoning skill leads to increasing numbers of adverse patient outcomes. Nurses are required to make decisions with multiple foci for example, diagnosis, intervention, interaction and evaluation in dynamic contexts, using a diverse knowledge base decisional pattern. However, inability to recognize clinical situation is the major cause of errors in decisions.

Objectives: - To assess nurse's clinical decision making approach in hospital settings, Addis Ababa, Ethiopia, 2017.

Methods: - Institution based cross-sectional descriptive study was conducted on 390 nurses. To determine the sample size a single proportional formula was used. Self-administered English version questionnaire (theoretical framework developing instrument by Lauri and Sanna Salanterä, included Hammond's CCT) was used. The instrument used to investigate nurses' clinical decision making patterns at clinical practice level. To explain study population in relation to relevant variables, descriptive statistics like: frequencies and percentages were calculated. Multi nominal logistic regression was used to show the association between CDM and associated factors among nurses. Permission was obtained from IRB. Information obtained from participants was kept secured and confidential.

Result: Clinical decision making score in this study ranges from 46 to 82 (mean = 65.5, SD = 4.5). Two hundred sixty two (67.2%) of the participant scored in analytical decision making category. One hundred twenty five of respondents (32.1%) scored in the category of quasi decision making which is a combination of both analytic and intuitive decision making process. Out of the total 390 respondents only three (0.8%) of them categorized as using intuitive decision making method when dealing with patient. Organizational type/private sectors (p=0.021), clinical simulation (P=0.031) and ICU department (P=0.025) were factors associated with clinical decision making.

Conclusion and recommendation: This study found that there was clinical nurses inclination to the use of analytical decision making to the most part, So, health delivery organizations to encourage nurses in particular clinical situation enable them to make decision that is timely and accurate as possible and also the use of quasi rational decision making method in there day today nursing practice with only a very few of them making intuitive decision making method. Organizational type (private sector), clinical simulation and ICU department were factors associated with CDM.

Keys Words: - Clinical decision making, Nurses, Intuition, and Analytical, Quasi-rational.

1. Introduction

1.1 Background

World Health Organization (WHO) has published the golden standards of nursing education and according to these standards, the development of clinical decision making skills should be provided in nursing school programs (1). In addition, decision making is required in order to acquire expertise (2). Clinical decision-making (CDM) is a process that nurses undertake on a daily basis when they make judgments about the care that they provide to patients (3), in related to this, the concept of CDM has also been associated with positive patient outcomes, including higher nurse-perceived quality of patient care (4).

Globally research in to CDM has been examined by studying cognitive processes, as well as how decisions are made, and the factors that affect CDM such as education and experience. Nurses in clinical practice have the skills, ability and freedom to make decisions regarding nursing interventions (5),(6).

Nursing care practice standard, as a part of clinical practice nurses are required to make decisions with multiple foci, diagnosis, intervention, interaction and evaluation in dynamic contexts, this nursing practice covers the promotion and maintenance of health, the management of illness, injury or infirmity and the restoration of optimal function, or palliative care (7).

Historically, CDM in nursing has been known in two approaches systematic-positivist models and the intuitive-humanist model (8), within the systematic-positivist model, analytical decision making theory accept that rational analytical thinking antecede action. The analysis is a systematic step by-step procedure with the use of logical rules that can be continued until the decision made (9). The intuitive-humanist model, intuition described in the following ways, understanding without rationale or perception of possibilities meanings and relationships by way of decision maker insight and how the knowledge gained from nursing experience enriches the clinical decision making process (10).

The wider concept of CDM identified and described three clinical decision making models. The analytical and intuitive stance towards decision making has having ardent followers, since the late 1990s, however, a third approach to decision making has been discussed based on cognitive continuum theory (CCT) offers the idea of a cognitive continuum where analytic and intuition are located in each end point, neither purely intuitive nor purely analytical. it referred to a quasi-rational cognition, meaning that many decisions present that between analytical and intuitive cognition, quasi-rationality is the middle ground in a cognitive continuum, the CCT help to describe the nature of the decisions nurses make (11).

The theoretical framework developing instrument is used to determine cognitive processes, nurses' perception they used in their decision making and correlate them with associated factors (12).

1.2 Statement of Problem

Clinical decision-making is both a cognitive and an affective problem solving activity that focuses on defining patient problems and selecting appropriate treatment interventions (13). Nurses are being held accountable for their decisions and the associated outcome, even though there is a gap between nursing education and CDM skills (14),(15). The need to improve CDM in nursing is one of the most serious issues in clinical practice. Nurse professionals face a number of different situations on a daily basis in hospital settings, CDM by nurses is a more complex process, more of requiring making defined choices between limited options, effective cognitive practices are remedied errors in decision making (16). However poor clinical reasoning skills, resulting in a failure to save patient from preventable harm (17),(18).

Clinical decision making is a process that can affects quality of care provided and patient safety (19),(20). If nurses are not clearly understand the initial assessment and the situation, significant errors in decision can be made (21), this could lead to unfavorable communication with other health professional as well as patients (22).

Health workers clinical decision making have a direct impact on the health status of the patient (23). Thus, increasing numbers of adverse patient outcomes (24). “cognitive failure” was a factor in 57% of adverse clinical events and this involved a number of features, including failure to synthesize and act on clinical information (25), ineffective CDM found that in study done in an analysis of the South African Nursing Council's (26). Another factors affecting CDM, unclear conditions (27), and by having incomplete and ambiguous information and also is done with the limitation of time and place (28).

Personal characteristics and organizational factors, such as, luck of practical experience (29), lack of institutional support like expertise training, un-integrated staffs managements leads to inappropriate CDM (30). Nurses feel they are in situations where they are unable to change aspects of patient care and that nurses lack autonomy within hospital systems (31),(32). Moreover, inability to recognize the clinical patterns are a chief causes of nurses' job dissatisfaction (33).

In Ethiopia, lack of studies conducted on clinical decision making. Therefore, the aim of this study was to assess nurses' approach they used to their decision making in clinical situations at hospital setting in Addis Ababa, Ethiopia, 2017.

1.3 Justification of the study

Clinical decision making and its associated factors are the potential benefit for the patient and for the development of effective clinical decisions in nursing. One of the characteristics of a profession is that professionals have to make safe clinical decision over the practice of their discipline. The current study is aimed to assess the clinical decision making pattern nurses used in there clinical practicum.

In western countries studies are available conducted on CDM but in Africa related studies are quite limited particularly in Ethiopia. The findings of this research will have an input for future researches on CDM; the results of this study will help health professionals, hospital administrators and policy-makers regarding nurses' clinical decision making.

2. Literature Review

2.1 Clinical decision making

The review of literature and clinical decision-making has been examined by studding cognitive processes, as well as how decisions are made even though the related researches on nurses' clinical decision. The research results and review articles in two categories CDM and demographics finding using as follows.

A descriptive study done in England 2015, the study determine the nature of the decision nurses make, from one hundred sixty eight, 76% participants scored in the quasi-rational decision making category, this category is both analytical and intuitive that shows flexible decision making based on the situation at hand. (23%) participants were in the analytically oriented category, while only two (1%) were in the intuitive category (34).

The clinical decision making study 2011, documented that a large sample of Norwegian nurses identified how demographic and contextual variables were associated with clinical decision making, the study participants the association between background and demographic variables, and CDM shows that nurses' years of experience, male gender, higher age and further education had the largest associations with clinical decision making. This study conducted, according to cognitive continuum theory 72% of nurses result was quasi-rational model of CDM, the other 22% use analytical systematic model and the rest 6% nurses supportive intuitive-interpretive CDM model, this study explore that how nurses perceived their CDM to make decision of care (35).

Clinical decision making of nurses in five countries (Canada, Finland and N. Ireland, Switzerland, and the united state) comprising a non-random sample of N=314, the results from these countries that involve both systematic and intuitive decision making. Nurses only limited experience also rely on intuition to some extent.

In the other hand the decision making of experienced nurses who had been engaged in intensive care for at least five years was based on a rapid and in-depth analysis of the situation and intuitive decisions based on the analysis (36).

Nurses' decision making and pain management outcomes study conducted to the purpose of identifying cognitive process. One hundred six nurses exclusively articulated analytical decision making, ten nurses exclusively articulated intuitive decision making, and the remaining eighty-three nurses articulated both analytical and intuitive decision making and quasi-rational cognitive processes (37).

The descriptive cross sectional study conducted in Mexican University 2017. The study uses 119 sample sizes of newly graduates' nurses, on the assessment of CDM and skills in nursing. The study showed, analytical intuitive decision making is 67% and the intuitive analytical 33% result reported (38).

2.2 Factors associated with CDM of nurses

The research encompassed 111 registered nurses in Newzealand, 2007, describe the nurse perceptions about the factors that influence CDM in their practice, the study result shows clinical decision making associated with nurses experience, education, the physical and atmospheric environment (39).

Another research undertaken to explore factors influencing CDM by physiotherapists as they made decisions in their clinical practice, the finding of this research revealed that professional factors such as work load and organizational factors that influenced decision making by resource available this situations are negative or positive influences on clinical decision making (40).

The mixed method study done on factors that influence triage decision on, 'emergency department triage nurses decision making for pediatric patients experiencing pain' on this study nurses years of experience gave them an intuitive skill (41). The descriptive study has been done on 154 nurses, in Iran, 2013, the study showed that experience and skill of clinical situations have been the most important factors affecting clinical decision making (42).

2.2 Conceptual frame works: factors affecting the decision making process includes demographic characteristics, individual factors and organizational setting. Any of these variables were possible presenting factors inputs in the clinical decision making process. The decision patterns also included as a dependant variable (43).

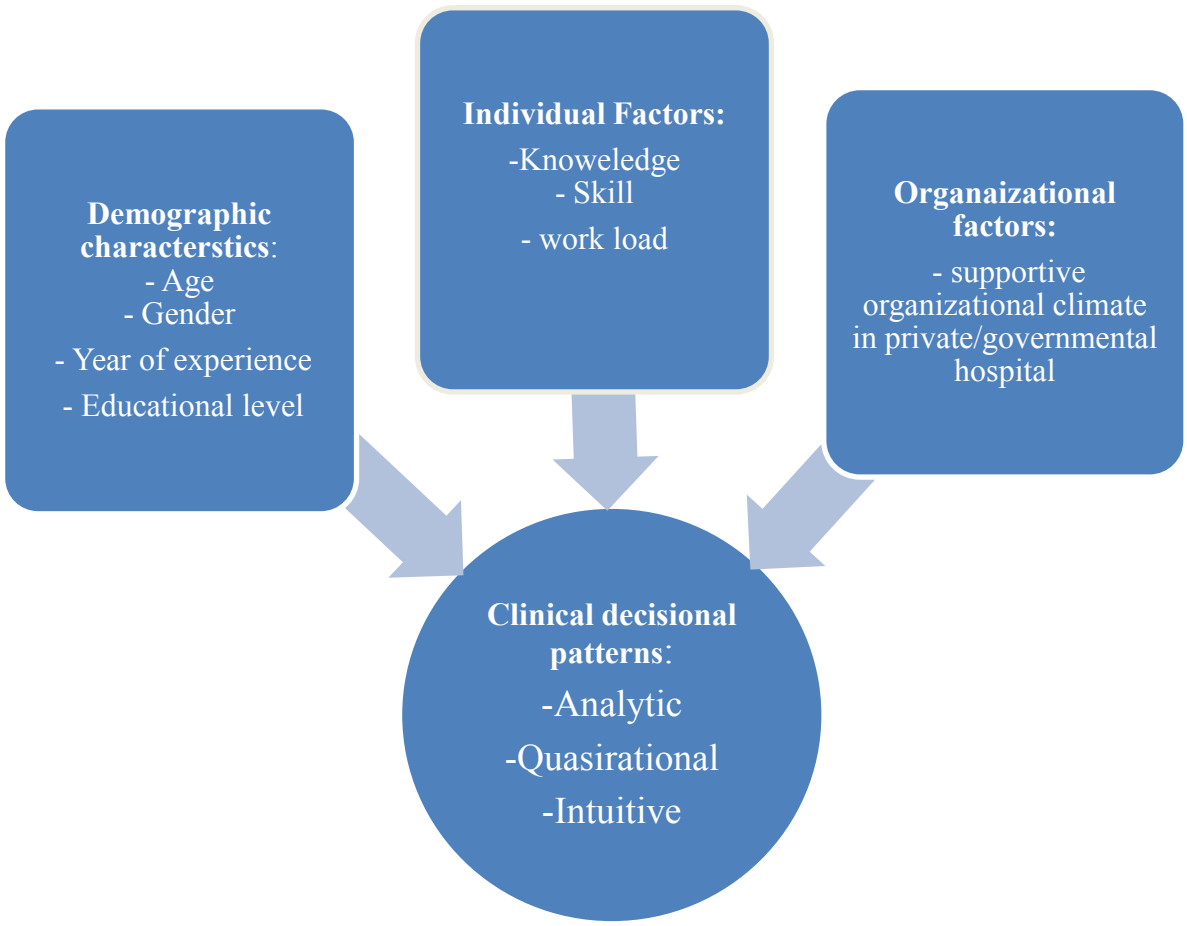

Figure 1: Diagrammatic representation of conceptual framework on clinical decision making of nurses.

2.3 Theoretical frame work (cognitive continuum theory)

In CCT intuition and analytics are defined as two models of cognition that can be placed at the ends of a continuum, where intuition refers to rapid, unconscious processing and low control. And analytic decision refers to slow, conscious and controlled processing (8):

- As decisions had less structure, time is limited, little need to demonstrate a rational and more cues greater movement toward intuition.
- Cognition moves on an intuitive-analytical continuum as a function of time.
- Quasi-rationality is the middle ground
- Cognitive (judgment and decision) tasks more along a continuum parallel to cognition itself.
- Cognition is selectively capable on pattern recognition and on the use of functional relations conditional up on task characteristics.
- Well structured decision, capable of being broke down (step by step) into section and present with complete information is analytical approach (44).

- Theoretical framework developing instrument by Lauri and Sanna Salanterä, used Hammond's CCT.
- The Cognitive continuum theory is a relevant descriptive model of clinical decision making skills (45).

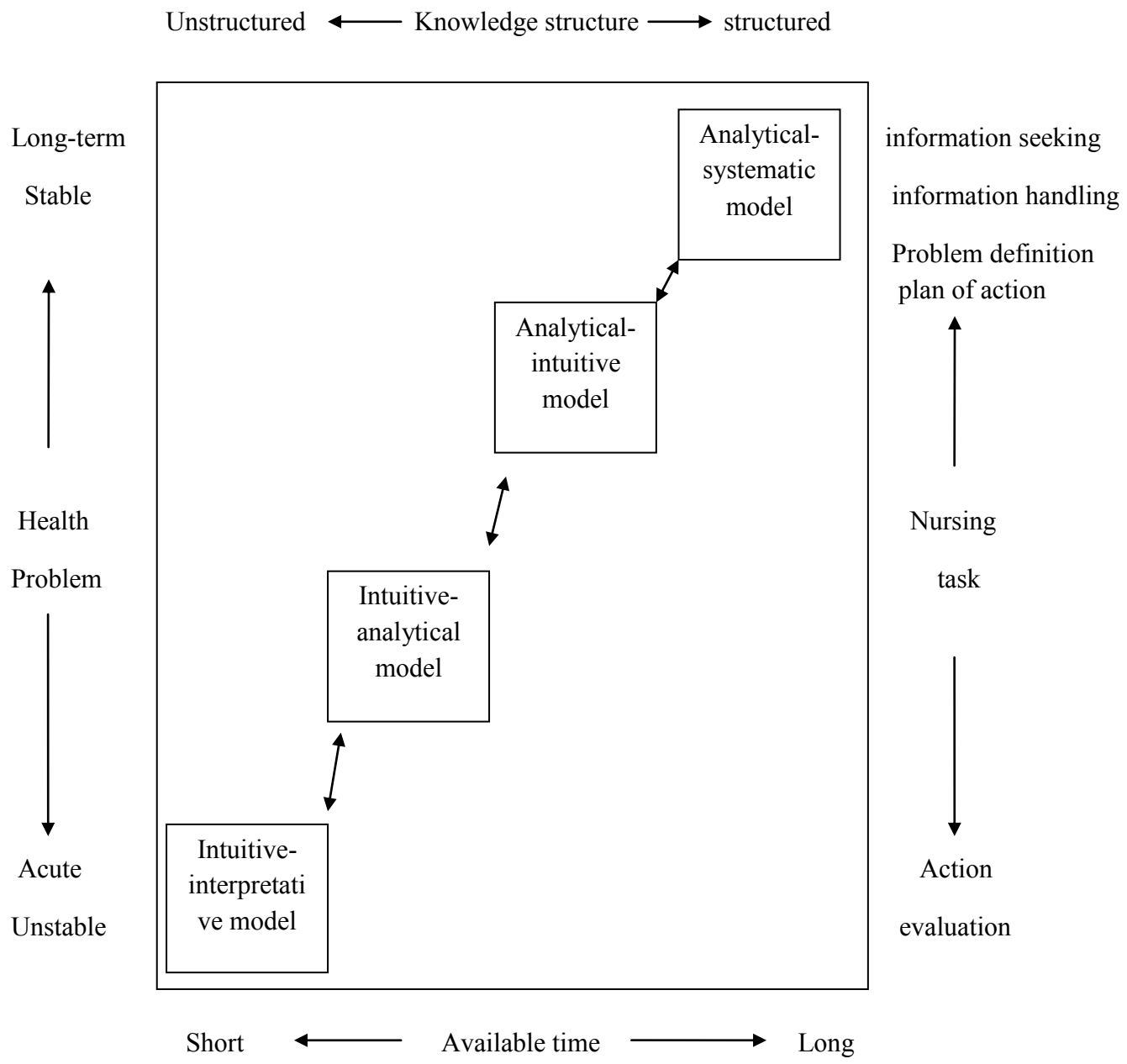

Figure 2: Nursing decision making theory framework based on Hammond's model of CCT **(11).**

3. Objectives

3.1 General Objective

To assess nurse's clinical decision making approach in hospital settings, Addis Ababa, Ethiopia, 2017.

3.2 Specific Objectives

- ✓ To determine patterns of decision nurses use in hospital settings
- ✓ To identify factors associated with clinical decision making

4. Methods and Material

4.1The study area and period

The study was conducted in Addis Ababa, which is the capital city of Ethiopia. It is the largest city in Ethiopia, As compared to other regions of the country Addis Ababa has highest concentration of health care facilities and health professionals. The total number of hospitals in Addis Ababa city is forty five (46). Out of the total forty five hospitals, about twelve of them are public. The rest hospitals are run by private investors. The study was conducted in ten hospitals (three governmental and seven private sectors selected from the total number of hospitals respectively). Governmental hospitals included: Tikur Anbesa, St. Paul, and Zewditu hospital. While, the private hospitals included: Teklehimanot, Bethel, Betezatha, Myung Sung Christian (MCM), landmark, yordanos and Addis hiwot hospital. The study was conducted from February to May 2017.

4.2 Study Design

Institutional based cross sectional quantitative study was used.

4.3. Source Population

All employed staff nurses working in hospitals, in Addis Ababa city

4.4 Study Population

Selected staff nurses working in selected hospitals, Addis Ababa city

4.5 Eligibility Criteria

4.5.1. Inclusion Criteria

Staff nurses working in clinical position, in selected hospitals

4.5.2. Exclusion Criteria

Nurse Managers they used to involve in managerial decision making, staff nurses who are not present due to different reasons at the data collection period.

4.6 Sample Size

The actual sample size of the study was determined using the formula of single population proportion formula.

$$n = \frac{(Z\alpha/2)^2 \, p \, (1-p)}{d^2}$$

Where n = estimated sample size

Zα/2 = Critical value at 95% confidence level of certainty (1.96)

P = prevalence

d = marginal error

To determine the sample size the following assumption was be used.

 since there were no previous studies which estimate the participation of nurses in clinical decision making, a prevalence level that estimate maximum sample size (50%) was considered.

 A 95% confidence level, d (0.05).

$$n = \frac{(1.96)^2 \times 0.5(1 - 0.5)}{(0.05)^2} = 384$$

A 10% non respondent rate will be added to: 384*0.1= 38.4= 38

Therefore the total sample size (n) is 422.

4.7 Sampling method and Procedure

There are forty five hospitals in A.A city. Selection of hospitals for the study was carried out after all hospitals in the city were identified. Three public and seven private hospitals included in the study. Each hospital was selected by lottery method out of twelve public and thirty three private hospitals respectively. Then the sample is determined using proportional allocation to size (PAS). The sample size was 422.

From the total sample size 422 study subjects were distributed at selected hospitals, the list of individual nurses with their department were obtained from human resource management in each selected hospitals and the lottery method was used to reach the individual sample.

The total numbers of nurses who are working in the selected hospital was 1,934. Based on proportional allocation to size 422 using the following formula:

Proportional allocation to size formula

$$= \frac{n_i * n_f}{N}$$

Where n_i -number of staff nurses in hospital

n_f -final sample size of the study

N -total number of staff nurses in the mentioned hospitals

Black lion hospital= $\frac{652*422}{1934} = 142.2 \sim 142$

St. Paul hospital= $\frac{482*422}{1934} = 105.1 \sim 105$

Zewditu hospital= $\frac{255*422}{1934} = 55.6 \sim 56$

MCM Korea hospital= $\frac{180*422}{1934} = 39.2 \sim 39$

Teklehimanot hospital= $\frac{86*422}{1934} = 18.7 \sim 19$

Yordanos hospital= $\frac{65*422}{1934} = 14.1 \sim 14$

Addishiwot hospital= $\frac{60*422}{1934} = 13.1 \sim 13$

Landmark hospital= $\frac{55*422}{1934} = 12$

Bethel hospital= $\frac{52*422}{1934} = 11.3 \sim 11$

Bethezatha hospital= $\frac{50*422}{1934} = 10.9 \sim 11$

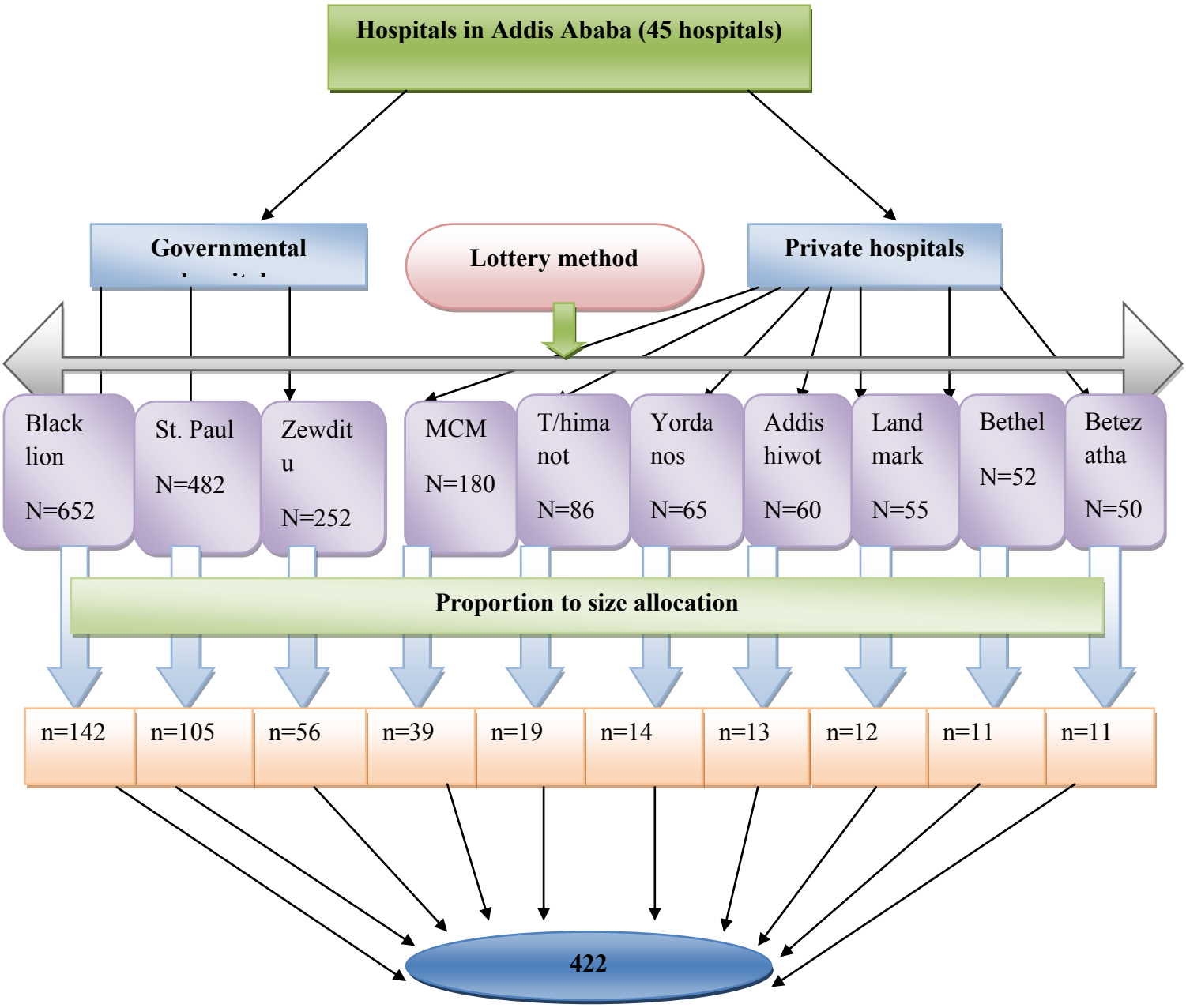

Figure 3: Schematic presentation of sampling procedure on nurses' clinical decision making at hospitals in Addis Ababa

4.8 Variables of the study

4.8.1. Dependent Variable

- ✓ Clinical decision making patterns (analytical, intuitive, Quasi-rational)

4.8.2. Independent Variables

- ✓ Demographic variables: age, gender and educational level.
- ✓ Individual variables: work load and year of experience.
- ✓ Organizational factors: supportive organizational climate (on job training, on clinical decision making) in private / governmental hospitals

4.9 Operational definitions

- ✓ Clinical decision making: - clinical judgments the outcome of cognitive processes; information processing, step-by-step conscious thinking, use of cues, patterns and previous experience applied to problem solving within health care settings.

  Participant who scored:

  < 67 points: decision-making is analytical-systematic decision making

  68-78 points: indicate quasi-rational decision making

  > 78 points: indicate intuitive-interpretive decision making (12).

4.10 Data Collection tool and process

Self administered questionnaire adopted from Sanna Salanterä (Professor of Clinical Nursing Science, Department of Nursing Science, University of Turku, Finland, and E-mail: sansala@utu.fi). The questionnaires contain 24-item Nursing decision making instrument(47). The questionnaire included the demographic and background parts also.

The data collection was conducted by four nurses were recruited as data collectors and additional two BSC nurses were recruited as supervisors. All data collectors and supervisors were oriented by principal investigator.

4.11 Data Quality control

Pre test was done two weeks before the start of actual data collection on 5% of the sample size in Yekatit 12 hospital to make sure the questions were easily understandable and to avoid ambiguous terminology if there is any. In order to assure the quality of data the principal investigator and supervisors was actively involved in supervision of the data collection and the overall activities on daily base to ensure the complete response of the questionnaire. The completed questionnaire was cross checked daily for inconsistencies throughout the course of data collection.

4.12 Data Processing and analysis

The collected data was checked manually for completeness and consistencies, after that coded and entered in EPI data version 3.1 and transferred to SPSS version 20 for analysis. Descriptive analysis is used to summarize the demographic characteristics of the study participants and clinical decision making. To identify factors associated with nurse's clinical decision multi nominal logistic regression was performed to each independent variable with the outcome variable. Strength of association was measured using odds ratio, and 95% confidence intervals were used. Statistical significance was declared at P value < 0.05.

The instrument consists of 24 items; respondents who answer each question on a 5 point Likert type scale with response options of "never," "rarely," "sometimes," "often," and "always." These items are scored from 1 to 5.

The scores for responses to odd items were reversed; thereby, the response option of 1 that scored as 5 and also indicate the intuitive approach; 2 is scored as 4, 3 remains unchanged, 4 becomes 2 and 5 is scored as 1; a low total score described analytical decision-making. The scores were added up and the sum total was interpreted as follows instructions; from Salanter¨a (Professor of Clinical Nursing Science, Department of Nursing Science, University of Turku, Finland, and E-mail: sansala@utu.fi) the 24-item Nursing Decision Making Instrument (48) :

< 67 points: decision-making is analytical-systematic decision making

68-78 points: indicate quasi-rational decision making

> 78 points: indicate intuitive-interpretive decision making

4.13 Ethical consideration

Ethical clearance and approval was obtained from Addis Ababa University (AAU), College of Health Science, School of Allied Health Sciences, Department of Nursing and Midwifery. Following the approval Official letter of co-operation was written to selected hospitals from Department of Nursing and Midwifery of AAU.

The study subjects were informed about the purpose of the research, privacy and confidentiality was kept in place and personal identification like name of the respondent was not asked. Information sheets and consent forms were provided to each participant.

4.14 Dissemination of Results

Results will be submitted to Addis Ababa University, College of Health Science, School of Allied Health Sciences, Department of Nursing and Midwifery, Addis Ababa, to all hospitals involved in this study.

5. Result

5.1 Participant characteristic

A total of 422 Clinical nurses working in 10 different hospitals selected randomly from 45 hospitals were approached for the study and result were obtained from 390(92%) of the participants. Concerning gender 105(26.9%) of them were male and 285(73.1%) of them were female nurses. The mean age of the participant were 28.22 with SD 5.6 and having a range between 19 and 62. In addition the working experiences of the nurses were ranging from as little as three month to 42 years high.

Table 1: Participants' characteristics by organization type (n=390), Addis Ababa, Ethiopia, 2017.

		Organization type	
		GOV	PRIVATE
		Count	Count
Sex	Male	83	22
	Female	204	81
Education level	Diploma	25	60
	Bsc	247	40
	Msc	15	3
Age	<25	93	35
	25-29	119	42
	30-34	53	16
	35-39	12	6
	40-44	3	1
	>45	7	3

5.2 Clinical decision making result

Descriptive statistics were computed for the Nurse Decision Making Instrument. CDM score in this study ranges from 46 to 82 (mean = 65.5, SD = 4.5). Two hundred sixty two (67.2%) of the

participant scored in analytical decision making category. One hundred twenty five of respondents (32.1%) scored in the category of quasi decision making which is a combination of both analytic and intuitive decision making process. Out of the total 390 respondents only three (0.8%) of them categorized as using intuitive decision making method when dealing with patient.

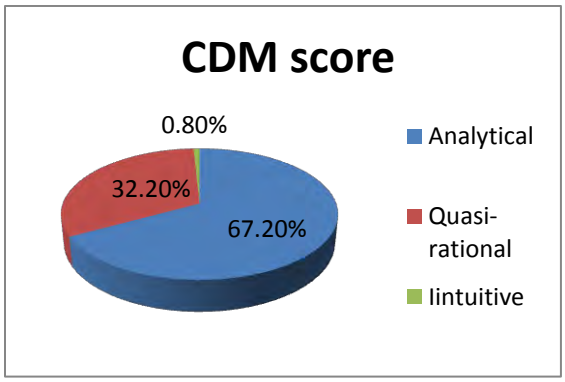

Figure 4: Clinical decision making respondent score, Addis Ababa, Ethiopia, 2017.

5.3 Other variable affection nurses clinical decision making process

Descriptive statistics of the predictor variables (age, experience, organizational type, department educational level, and perceived work load) where computed and the following result where obtained. Clinical nurses working in private health facilities tend to have a slightly higher score (66.4 with SD 4.7) than the government facilities, but both of them falls in the category of analytical decision making method. Nurses who are male tended to have a slight higher score of CDM (66.09, SD 4.66) than female nurses (65.4, SD 4.4), otherwise no major differences were observed in the resulting score for the method of pre-service teaching method.

In the descriptive study there was no difference observed in the mean value of CDM score as the age of the nurses increased from the lowest to highest, but it is observed that those nurses who have working experience of more than 25 years showed a slightly higher score (66.6, SD 4.6) as compared to the other age group.

With regard to educational level of the nurses it was found that nurses with diploma scored higher (66.08, SD4.8) that those with BSC degree and MSC (65.6 SD4.3 and 65.6 SD 5.4) respectively. Those participants who responded to have on job training found to have a higher

score (66.13 SD 4.6) than who do not have the training (65.5 SD4.4). Lastly those participants who claims to have a low working load perception during working hour happens to have a higher CDM score (67.33 SD 2.5) that those who said to have medium and high workload.

Table 2: Descriptive Statistics with the clinical decision making score for each predictor variable, Addis Ababa, Ethiopia, 2017.

		Clinical decision making of nurses		
		Mean	Total N	Standard Deviation
On job training	No	65.30	253	4.39
	Yes	66.13	137	4.68
Workload	High	65.58	298	4.40
	Medium	65.49	86	4.97
	Low	67.33	6	2.50
Nursing department	Medical	65.24	86	4.38
	Surgical	65.22	79	4.00
	Emergency	65.98	63	5.47
	ICU	66.81	57	4.75
	Pediatric	66.08	26	4.86
	Gynecology	64.12	25	3.56
	Others	65.39	54	3.94
Education level	Diploma	66.08	85	4.83
	BSC	65.44	287	4.34
	MSC	65.67	18	5.46
Work experience	<1	65.77	62	4.46
	1-4	65.84	183	4.60
	5-9	65.24	113	4.48
	10-14	64.79	19	4.08
	15-19	64.43	7	4.35
	20-24	64.00	1	

For the question seeking to answer the pre service teaching methods the nurses has experienced before join the working environment all respondents was found to have used lecture and clinical practice as a teaching method while only 127(32.6%) of nurses had problem based learning method. Out of the 390 total participants 285(73%) have used demonstration method and clinical simulation was experienced by only 95(24.4%) of participant.

A descriptive statistics to see the pattern of CDM score across different teaching methods were computed and it was observed they have score a mean of 65 expect for clinical simulation which was slightly higher with those respondents who had clinical simulation scored 66.4 SD 4.9 and those who do not have clinical simulation scored 65.3 with SD 4.3.

Table 3: Clinical decision making score across difference pre-service teaching method, Addis Ababa, Ethiopia, 2017.

Teaching method		N	Mean score	SD
Clinical simulation	No	295	65.3119	4.33280
	Yes	95	66.4526	4.92663
Demonstration	No	105	65.2095	3.71249
	Yes	285	65.7298	4.76201
Case studies	No	268	65.5784	4.45845
	Yes	122	65.6148	4.62377
Lecture	Yes	390	65.5897	4.504
	No	0	-	-
Clinical practice	Yes	390	65.5897	4.504
	No	0	-	-

Since the outcome variable where three (Analytical, Quasi, and intuitive) method of clinical decision making Multinomial logistic regression analysis was performed to each predictor

variable to see if there is an actual association between the dependent variable method of clinical decision making.

The Likelihood ratio test was performed for each predictor variable with the dependent variable to see the contribution of each variable to the model and those variables which are significant (P<0.05) with 95% confidence interval where retained for the final model. For the purpose of analysis the use of one reference dependent variable was necessary to compare the outcome variable with the predictor variable.

Sex was not found to be a statistically significant predictor of the outcome variable since it fail to satisfy the model fitting criteria and was excluded from further analysis. Also age of the respondent was not statistically significant predictor of the outcome variable since in the model fitting criteria the p value where 0.920.

Organization type where was found to have a statistically significant association with decision making patter it shows that nurses working in government where less likely to use quasi decision making method as compared to private organization with OR of 0.574 (95% CI 0.359 to 0.920). But there was no statistically significant associated noted in the intuitive decision making pattern since the p value where greater than 0.05.

Table 4: Clinical decision making patterns association between private and governmental organizations Addis Ababa, Ethiopia, 2017.

Group		B	Sig	Exp(B)	95% confidence interval	
					Upper	lower
Quasi	Gov.	-.554	0.02101337	.574	.359	.920
Intuitive	Gov.	-1.92	0.1179	0.14	0.0129	1.6

*analytical and private organization method is taken as a reference variable.

Under department of practicing nurse a significant association where noted with the p value of 0.025 and OR 2.4 with 95%CI (1.1 to 5.5) for nurses practicing in ICU who were prone to use quasi-decision making pattern while dealing with patient.

Among the five pre-service teaching method only clinical simulation were found to have a statistically significant association with clinical decision making pattern of nurses with a significant value of P 0.031 in the like hood ratio test.

It was found those nurses who did not experience clinical simulation method of learning in the preserve teaching time prone to be analytic in the decision current decision making pattern with OR 0,539 with p=0.012 at 95%CI (0.33 to 0.87). In conjunction with clinical simulation it was found not to have a significant factor to influence the intuitive decision making pattern.

6. Discussion

The decisions nurses make while performing nursing care will influence their effectiveness in clinical practice and make an impact on patients' lives and experiences with health care regardless of which setting or country the nurse is practicing in (35). The purpose of this study was to examine the way nurses make decision when dealing with patient and also to see if there is any relationship between how nurses make decision with some predictor variable (Age, sex, experience, on job, workload, etc.).

On the present study descriptive statistics showed most of the respondents to be using analytical decision making method (67.2%) this indicate nurse's deals with elective patient in a more affordable amount of time to make decision with well-structured situation. This finding of the study was in similarity with a research conducted at Mexican university hospital where by 67% of the participant found to be using analytical decision (38).

In our study quasi-rational decision making accounts for 32.1% of the participants, this category implies the use of both analytical and intuitive method in combination while making clinical decision. These findings were in contradiction to the study done in Norway where the majority of participants were using quasi rational (67.2%) followed by analytical decision making method (38).

In addition a study conducted in England revealed the highest number of nurses to be using quasi rational decision making (76%) while 23% use analytical and only one percent accounts for intuitive decision making (34).

In our study (0.8%) intuitive decision making accounts for a very few proportion of nurses. These results are evident in a study conducted in Norway where by only about 6% of the participant out of 2020 participant uses intuitive method of decision making. This finding were also evident in a study carried out in England in which only one percent of the participant where found to be using intuitive method of decision making (34). This result of low intuitive method decision might be as a result of nurses more reliance on doctor's orders and assessment to make the final decision.

In this study sex of nurse was not found to be a significant predicting factor affecting nurses' clinical decision making this finding was in contrast to study in Norway which showed male nurse tend to have a higher mean score of CDM even though they had less experience and less educational status (35).

With regard to nurses practicing department pediatric and ICU department showed increased mean score indicating nurses are required to be able to notice different patient patterns, cues quickly and make decision Such situations favor an intuitive approach. But statistical analysis showed among the nurses departments in only ICU a significant association with decision making pattern was seen with p value of 0.025. In the Norway study a significant association in was noted in surgical ward in which nurses working in surgical department where more likely to be using intuitive reasoning.

In this study neither experience nor age of nurses were found to have an association with clinical decision making and this finding were similar to a study conducted across five different countries (Canada, Finland, Ireland, Switzerland, and united states). This finding shows that nurses are more reliant on well documented data and physician in charge about their patients.

A contrary result were obtained in a study conducted in Iran showing experience and skill in clinical situation are the important factors affection clinical decision making (42), this differences in the result could be as a result of different degree of freedom nurses have in different countries.

In this study private health care delivering organizations scored a slightly higher mean score than government organizations. In multinomial regression it was also evident that private organizations are more likely higher mean CDM score than government organizations, but no significant association was found in using intuitive method in both government and private organization, this result of higher score in private organization is unexpected and further research might be required.

At last this study revealed among the five pre-service teaching methods nurses who had clinical simulation during pre-service period are more likely to be using be quasi-rational decision making which is a combination of both analytical and intuitive decision method, this implies

having such method of teaching enable nurses confidence in making their own intuitive reasoning in conjunction with the available data at hand.

7. Conclusion and recommendations

7.1 Conclusion

This study found that clinical nurses more often uses analytical method of decision making and followed by quasi-rational method in practicing their job, with only a very few proportion accounting for intuitive method.

This result implies nurses tendency to make decision based the available information involving well-structured task and the use of very few cues in which case there might be delay in early detection and proper management of patients (49).

In this study personal characteristic like age, sex and working experience was not found to be a significant predictor of nurses' decision making. Instead the working organization that is government or private were an important predictor variable.

Among the different practicing nurse departments only in the Intensive care unit a significant association to the utilization of Quasi-rational method of decision making was observed.

This study found private organization to have a higher mean score for clinical decision making score with private organization found to have a more likely chance of using quasi-rational method of decision making.

At last from all five pre-service teaching methods only the use of clinical simulation was found to be associated with nurses clinical decision making pattern,

7.2 Recommendations

Based on the findings of the study the investigator recommends healthcare service delivering organizations to create a good working environment for the staffs and give the decision-specific training to healthcare workers nurses in particular to enable them to make decision that is timely and accurate as possible. Since the result of the study showed decision of nurses more based up

on information gathering with ample time available to make decision which sometimes might have an poor patient heath out come due to delay in response to matters urging quick decision.

In addition it is noted that the use of clinical simulation is very important method of teaching to enable nurses to make decision in matters requiring response to patient need.

8. Strengths and limitation of the study

8.1 Strength

- The study used a large sample size (n=390) with 8% non-response rate
- The study utilized a valid and standardized instrument
- It dealt with important component of health care services, that is nurses clinical decision making since the study included all hospitals found in Addis Ababa as a source population representativeness is possible

8.2 Limitation of the study

- Lack of adequate similar studies to make more comparative discussions

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Appendix I Questionnaire

Consent form

Dear nurses: You are invited to participate in a research study entitled " assessment of clinical decision making of nurses, working at hospitals in Addis Ababa" the study is being conducted by Fikirte Negash an Addis Ababa university MSc candidate.

The purpose of this quantitative study to determine the nature of the clinical decisions nurses make. If you agree to participate, you will be asked to complete two things: -

A short demographic instrument

A 24-item CDM instrument (Sirkka Lauri and Sanna Salanterä 2002)

The study is completely independent from your nursing department. Your nursing department will not have information on who did or did not participate in this study. There are no costs for participating, benefits of participating in this study include the potential for a better understanding in the ways nursing clinical decisions making. All information collected for this study is completely confidential and no individual participant will ever be identified with his/her research information.

If you have question about the study, you are free to contact the investigator at the address and phone number below.

I thank you for considering the opportunity to participate in this study.

Investigator: Fikirte Negash

Tel. +251911371166

Email: fikirtenegash@gmail.com

I agree and continue, yes _____, signature _____

No _____

Demographic Questionnaire

1. Are you an employed a staff clinical nurse? Yes____ No ____

If your answer is yes please continue, if no please stop here

2. What is your age? _____ (by year)

3. Sex: _____ Male _____ Female

4. Select your highest level of education after high school:

_____Diploma

_____Bachelor's degree

_____Master's degree

_____Others specify

5. Experience in nursing (in current hospital or in some other hospital) _____

6. Which organization are you currently working in? _____Governmental _____Private

7. Which nursing department are you working now? _____

How is the work load in your department by your perspective? _____high, _____ medium, _____ low

8. Do you have on job training on clinical decision making? _____yes _____no

9. Which teaching strategies were used during in your pre-services training (in your nursing education program)? More than one answer is possible

____Problem based learning (PBL) ____Lecture

____Case studies _____Clinical practice

____Clinical simulation _____demonstration

Nursing decision making instrument Sirkka Lauri and Sanna Salanterä 2002

Listed below are some statements that describe how nurses make decisions in different situations of patients' care. Please read each statement carefully and mark the square that best describes your own action.

	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)
1. I collect as much advance information as possible from the patient's records.					
2. I rely on my own interpretations when it comes to defining the patient's condition.					
3. On the basis of my advance information I specify all the items I intend to monitor and ask the patient about.					
4. I make assumptions about forthcoming nursing problems during the first contact with the patient.					
5. I confirm the impression I have formed on the basis of advance information by seeking for symptoms that support my views.					
6. It is easy for me to make a distinction between relevant and irrelevant information in defining the patient's condition.					
7. I compare information I have received about the patient with my earlier knowledge of similar individual patients' cases.					
8. I compare information I have received about the patient with my own experiences in nursing practice.					
9. I compare information I have received about the patient with research knowledge about the nursing care and its impacts.					
10. It is easy for me to see, even without closer analysis, which pieces of information are relevant to defining the patient's nursing problems.					
11. I define the patient's nursing problems objectively on the basis of the symptoms and complaints observed.					

	Never	Rarely	Sometimes	Often	Always
12. It is easy for me to form an overall picture of the patient's situation and major nursing problems.					
13. I draw up the patient's nursing plan according to the stages of the nursing decision-making process.					
14. I base the patient's nursing plan on my own nursing views and/or the patient's views on his/her care.					
15. I base the patient's nursing plan on the general regimes prescribed for the patient's disease.					
16. I document without difficulties the general directions concerning the patient's care to the patient's records.					
17. I set out targets for the patient's care that are easy to measure.					
18. I anticipate the impacts of nursing interventions on the patient.					
19. I follow as closely as possible the patient's existing nursing plan for his/her disease and situation.					
20. I anticipate changes in the patient's condition on the basis of individual cues even before there are any clear symptoms.					
21. I use specific information about the treatment of the patient's disease when making decisions about nursing care.					
22. I flexibly change my line of action on the basis of feedback on the patient's situation.					
23. I try to find reasons for my own observations of changes in the patient's condition.					
24. It is easy for me to assess the impacts of my actions on the patient's condition.					

THANK YOU! 

Appendix II- Declaration

The undersigned, declare that this thesis is my original work in partial fulfilment of the requirement for the degree of masters of adult health nursing and has not been presented in this or any other university and all source of materials used for this thesis have been duly acknowledged.

Name: Fikirte Negash

Signature: _____

Date: _____

Place: Addis Ababa University, school of Allied Health Sciences, Department of Nursing and midwifery

This thesis has been submitted for examination with my approval as the university advisors.

Primary advisor: Erdaw Tachbele (MPH, PHD fellowship)

Signature: _____

Date: _____

Co-Adviser: Sr. Tsion Alemu (BSc, MSc)

Signature: _____

Date: _____

Place: Addis Ababa University, school of Allied Health Sciences, Department of Nursing and midwifery